



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁷ : C07H 21/04, C12N 1/04, 5/10, 15/00, 15/29, 15/82, A01H 1/00, 5/00, 9/00, 11/00	A1	(11) International Publication Number: WO 00/69883 (43) International Publication Date: 23 November 2000 (23.11.00)
--	-----------	---

(21) International Application Number: PCT/US00/13379

(22) International Filing Date: 15 May 2000 (15.05.00)

(30) Priority Data:
60/134,373 14 May 1999 (14.05.99) US

(71) Applicant (for all designated States except US): FRED HUTCHINSON CANCER RESEARCH CENTER [US/US]; 1100 Fairview Avenue North, M/S C2M 027, Seattle, WA 98109-1024 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): ROBERTS, James [US/US]; 2540 Shoreland Drive South, Seattle, WA 98144 (US). KELLY, Beth [US/US]; 2156 6th Avenue West, Seattle, WA 98119 (US).

(74) Agents: POOR, Brian, W. et al.; Townsend and Townsend and Crew LLP, Two Embarcadero Center, 8th floor, San Francisco, CA 94111-3834 (US).

(81) Designated States: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published*With international search report.**Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.**With an indication in relation to deposited biological material furnished under Rule 13bis separately from the description.*

(54) Title: METHODS FOR INCREASING PLANT CELL PROLIFERATION BY FUNCTIONALLY INHIBITING A PLANT CYCLIN INHIBITOR GENE

(57) Abstract

The present invention provides methods for modulating the growth and/or yield of plants. In particular the methods comprise the use of agents which functionally inhibit the expression of plant D-like cyclin inhibitors including isolated polynucleotide sequences which interact with DNA or RNA encoding proteins capable of binding plant D-like cyclins. Further, the present invention provides recombinant polynucleotide sequences, vectors and host cells which encode proteins capable of binding to and inactivating the activity of plant D-like cyclin/cyclin dependent kinase complexes preventing plant cells from exiting the cell cycle. Methods for determining and agents which are inhibitors of the BRO cyclin dependent kinase inhibitor proteins which are capable of modulating plant cell cycle progression are also provided. Methods for the production of transgenic plant cells and plants with increased growth rates and yields when compared to wild-type plants are also provided.